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APPENDIX B

SOIL, SOIL VAPOR, AND CONCRETE SAMPLING AND ANALYSIS PLAN

Soil, Soil Vapor, and Concrete Sampling and Analysis Plan

Former Pechiney Cast Plate, Inc., Facility

3200 Fruitland Avenue, Vernon, California

Prepared for:

Pechiney Cast Plate, Inc.

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July 20, 2007

Project No. 10627.003.0

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SOIL, SOIL VAPOR, AND CONCRETE SAMPLING AND ANALYSIS PLAN

Former Pechiney Cast Plate, Inc., Facility
3200 Fruitland Avenue
Vernon, California

1.0 INTRODUCTION

Sampling and analysis procedures are described below for confirmation soil and concrete sampling. If additional characterization work is necessary, additional soil, soil vapor and concrete sampling will be completed as described is this Plan. This Plan will be used in conjunction with the Feasibility Study/Remedial action Plan (FS/RAP) (Geomatrix, 2007a), Below Grade Demolition Plan (Geomatrix, 2006a), below-grade technical specifications, and other related documents related to this project.

2.0 CONFIRMATION AND CHARACTERIZATION SAMPLING

Confirmation and characterization soil, soil vapor, and concrete sampling will be conducted by a Geomatrix Consultants, Inc. (Geomatrix), field geologist/engineer under the supervision of a Professional Geologist or Professional Engineer. Site health and safety planning, utility clearance, sampling and analysis, sample handling procedures, equipment decontamination and waste contaminant procedures, and sample location recording are described herein.

2.1 Site Health and Safety Plan and Utility Clearance

A Site-specific Health and Safety Plan (HASP) will be used during the field activities performed by Geomatrix personnel (Geomatrix, 2006b). The HASP will address the potential risks to the personnel performing the sampling activities proposed in this Plan.

Utility locating and clearance will be the responsibility of the demolition contactor managing the Site.

2.2 Soil Sampling and Analysis

Soil samples will be collected for confirmation and characterization purposes from areas where impacted soil is removed and/or observed during the below-grade demolition and remediation activities. The soil samples will be collected directly from the backhoe bucket of the excavating equipment. In some cases, soil samples may also be collected using hand auger or other drilling methods.

The number of confirmation soil samples collected and analysis selected will be determined by Geomatrix. The analytical suite will be selected based on field observations, a review of past operations in the area, and results of previous investigations in the vicinity of impacted soil. These samples will be analyzed under 24- to 48-hour turnaround to support the demolition activities. The suite of analyses may include one or more of the following test methods:

- Total Petroleum Hydrocarbons (TPH) with carbon chain range quantification using Environmental Protection Agency (EPA) Method 8015M (Modified);
- Volatile Organic Compounds (VOCs) using EPA Method 8260B and field preservation Method 5035;
- Polychlorinated Biphenyls (PCBs) using EPA Method 8082;
- California Assessment Manual Metals using EPA Methods 6010B/7000; or
- Semi-Volatile Organic Compounds (SVOCs) using EPA Method 8270C. Samples will be selected for SVOC analysis based on the reported TPH concentrations; soil samples exhibiting greater than 2,000 mg/kg of TPH will be analyzed for SVOCs.

Additional characterization soil samples may be collected based on observations made during demolition and soil removal and will be included as part of the field quality assurance/quality control (QA/QC) program for the Project. The QA/QC procedures are discussed in the Quality Assurance Project Plan (QAPP; Geomatrix, 2007b).

Waste profile sampling of investigative derived waste (IDW) will also be conducted. Sampling and handling procedures will be determined when the waste is generated.

2.3 Soil Confirmation Sample Locations

In general, confirmation samples will be collected from "small area" excavations (less than 100 cubic yards of soil) by dividing the excavation into four equal parts using a grid pattern. A typical grid pattern for a small excavation is shown on Figure 1. Four side wall soil samples will be collected, one on each sidewall at the location where the gird line intersects the sidewall (horizontal locations). At the grid line point on the wall, the sample location will be placed at a vertical midpoint between the top and bottom of the excavation wall. At the base of the excavation, two soil samples will be collected from areas located in diagonally opposite grids of the four grid squares, equally representing the excavation bottom.

In general, confirmation samples will be collected from "large area" excavations (greater than 100 cubic yards of soil) by dividing the excavation into at least six equal parts in a grid pattern.

A typical grid pattern for a large excavation is shown on Figure 1. At least six side wall soil samples will be collected along the side walls at the location where the gird line intersects the wall (horizontal). At the grid line point on the wall, the sample location will be placed at a vertical midpoint between the top and bottom of the excavation. At least two sidewall samples will be collect from the longer walls and at least one side wall sample will be collect from the shorter wall. At a minimum, confirmation samples will be spaced horizontally at a distance of at least 10 to 15 feet along the side walls. At the base of the excavation at least three soil samples will be collected from areas located in diagonally opposite grids of the six grid squares, equally representing the excavation bottom. The actual number of confirmation samples collected from the "large area" excavation will be determined in the field based on the size of the excavation.

2.4 Soil Vapor Sampling and Analysis

A soil vapor sampling will be conducted in portions of the Site, including within the area of Building 112 (Stoddard solvent impacted soil). The sampling will be used to assess the concentration and distribution of vapor-phase VOCs (if present at the site) and Stoddard solvent. Temporary soil vapor points will be installed using hydraulic-drive, direct-push installation methods. Vapor samples will be collected at each location from approximate depths of 5 and 15 feet below ground surface.

The soil vapor sampling will be conducted in general accordance with California Regional Water Quality Control Boards, Los Angeles Region (RWQCB) "Interim Guidance for Active Soil Gas Investigation" dated on February 25, 1997 and the Department of Toxic Substances Control (DTSC) and RWQCB "Advisory-Active Soil Gas Investigations" dated January 28, 2003 (Joint Advisory).

Soil vapor samples will be analyzed by an on-site mobile laboratory for the RWQCB target list of 23 VOCs, 2-butanone, naphthalene, and Stoddard solvent using gas chromatography/mass spectrometry methods similar to EPA Test Method 8260B for soil and groundwater. For the mobile laboratory to report Stoddard solvent, the laboratory instrument will be calibrated against a Stoddard solvent calibration standard.

Target List of Compounds for Soil Vapor Survey	
1,1,1,2-Tetrachloroethane	Ethylbenzene
1,1,1-Trichloroethane (1,1,1-TCA)	Freon® 11 (Trichlorofluoromethane)
1,1,2,2-Tetrachloroethane	Freon® 113 (1,1,2-trichloro-1,2,2-trifluoroethane)
1,1,2-Trichloroethane (1,1,2-TCA)	Freon® 12 (Dichlorodifluoromethane)
1,1-Dichloroethane (1,1-DCA)	Methylene chloride
1,1-Dichloroethene (1,1-DCE)	Xylene (o, m, and p)
1,2-Dichloroethane (1,2-DCA)	Tetrachloroethene (PCE)
Benzene	Toluene
Carbon tetrachloride	trans-1,2-Dichloroethene (t-1,2-DCE)
Chloroethane	Trichloroethene (TCE)
Chloroform	Vinyl chloride
cis-1,2-Dichloroethene (c-1,2-DCE)	

In addition, the soil vapor sampling will include the following additional procedures.

- Hydrated bentonite will be used to achieve a seal at the surface of the temporary sampling probe. At each sample point, isopropyl alcohol will be used as an ambient air leak detection compound.
- A one time purge volume test will be conducted at the beginning of the work.
- Prior to sample collection, each sample point will be purged using the volume selected during the purge volume test, as per RWQCB guidelines. If no-flow or low-flow conditions occur, the soil vapor sample probe will be pushed deeper and another sampling attempt will be made.
- Ambient air blanks will be collected and analyzed during each day of sampling.
- Duplicate soil vapor samples will be collected at a frequency of 10 percent of the total samples collected.

Reporting limits for target soil vapor compounds will be consistent with the RWQCB reporting limits of 0.1 to 1 µg/L. However, higher reporting limits may result if compounds have concentrations greater than the calibration range and require dilution.

2.5 Concrete Characterization Sampling

Concrete characterization testing has been previously conducted at the Site and the data are summarized Appendix A of the FS/RAP. Based on these data, PCB-impacted concrete slab areas where concentrations exceed site-specific remediation goal for PCBs will be demarcated

in the field by marking the slab surface. Impacted concrete will then be saw cut, removed, and transported off-site for disposal at an appropriate landfill facility.

Additional concrete characterization sampling will be conducted during the below grade slab removal work if visual stained concrete is observed beyond areas already tested for PCBs. Samples of the concrete will be collected from a core measuring 1.2-inches in diameter to a maximum depth of 3 inches into the concrete slab. The cores will be sent to the laboratory for crushing and will be analyzed for PCBs using EPA Method 8082.

Waste profile sampling of IDW will also be conducted needed at the time the materials are generated.

3.0 SAMPLE HANDLING PROCEDURES

Sample handling procedures applicable to this work will include sample containers and preservation, sample labeling, sample packaging, shipment, and chain-of-custody procedures; they are described in the following subsections.

3.1 Sample Containers and Preservation

Soil samples will be collected in acetate liners, 6-inch long brass or stainless steel sleeves, glass jars (glass jars will be not be used for samples being analyzed for VOCs or SVOCs), or volatile organic analysis vials. No preservatives are required for soil samples collected and submitted for TPH, SVOCs, metals, or PCBs (including concrete) analyses. Soil samples for VOC analysis will be collected using cut syringes (or equivalent) as described in EPA Preservation Method 5035 (field preservation). Soil samples for VOC analysis will be collected in cut syringes following EPA Method 5035 for field sample preservation. Soil samples will be preserved in the field using pre-weighed laboratory sample containers with methanol and sodium bisulfate preservatives. If the soil samples react with the sodium bisulfate preservative, it will be replaced with laboratory grade water. During the Phase II Environmental Site Assessment (ESA), soil from the Site reacted with the sodium bisulfate preservative, and it was replaced with laboratory grade water.

Clean, pre-packaged glass jars and containers will be provided by the laboratory. Samples, once packaged and labeled, will be placed in an ice-filled chest for transport to the stationary laboratory.

3.2 Sample Labeling

Sample identification will include a sample-specific identification code linking the sample to descriptive information recorded in field documents. A separate label will be affixed to each sample container with a self-adhesive backing. The sample identification code will consist of the following components:

- sequential sample location number (1, 2, 3, etc.);
- two letter code, describing the type of sample (SS = soil sample; SV = soil vapor sample; SM = sediment or sludge sample; DC = concrete sample; and DW = decontamination water sample); and
- two-digit sequential number describing the sampling depth (01 = the first sample colleted at 5 feet below grade, 02 = the second sample collected at 10 feet below grade, etc.) or sequential sample from a side wall of an excavation (01 = the first side wall sample collected from the east wall, etc.).

As an example, a sample labeled 01-SS-01 would represent a soil sample collected from side wall sample location number 1, at about 6 inches into the side wall. Sample labeled 02-SS-01 would represent a soil sample collected from the bottom of the excavation at sample location 2, at a depth of 6-inches below the base of the excavation.

3.3 Sample Packaging, Shipment, and Chain-of-Custody

Soil and field QA/QC samples will be collected and will remain sealed within the sampling containers until analysis is conducted by the laboratory. Ice contained in resealable plastic bags will be placed in the ice chest and used to keep the samples chilled. The condition of samples will be inspected prior to shipment.

Chain-of-custody (COC) procedures will be followed to ensure field sample integrity and tracking of sample custody. Each time a sample changes hands, both the sender and the receiver will sign and date the COC form. When a sample shipment is sent to the laboratory, the top signature copy is enclosed in plastic and secured to the inside of the sample shipment containers. A COC record will be completed for each shipping container.

4.0 EQUIPMENT DECONTAMINATION AND WASTE CONTAINMENT

Sampling equipment (hand augers, shovels, etc.) will be re-used between sample locations. To reduce the potential for cross-contamination, re-usable sampling equipment will be decontaminated using the following procedure:

1. wash and scrub in the non-phosphate detergent and potable water (first bucket);
2. rinse or soak in potable water (second bucket);
3. rinse in DI water (third bucket); and
4. final rinse with DI water and air dry.

Disposable nitrile gloves will be worn during all decontamination activities. Decontamination water will be temporarily stored in 5-gallon buckets and transferred to a 55-gallon labeled drum at the end of each day. Decontamination of the backhoe bucket will be based on visual observation and the condition of the soil excavated prior to sampling.

Decontamination water temporarily will be stored on-site in Department of Transportation - approved 55-gallon labeled drums until the IDW have been characterized for waste management or disposal.

5.0 EXCAVATION AND SAMPLE LOCATIONS

At the completion of the confirmation and characterization sampling and prior to excavation backfill, the perimeter of the excavation and sample points (when accessible) will be surveyed (vertical and horizontal control) by a licensed surveyor. If the sample points are not accessible to the surveyor, the confirmation soil samples will be measured in the field with respect to a corner of the excavation.

6.0 REFERENCES

Department of Toxic Substances Control (DTSC), 2003, Advisory-Active Soil Gas Investigations (Advisory), January 13.

Geomatrix Consultants, Inc., 2006a, Below Grade Demolition Plan, Former Pechiney Cast Plate Facility, Vernon, California, December.

Geomatrix Consultants, Inc., 2006b, Site Health and Safety Plan, Pechiney Cast Plate Facility, Vernon Facility, 3200 Fruitland Avenue, Vernon, California, July.

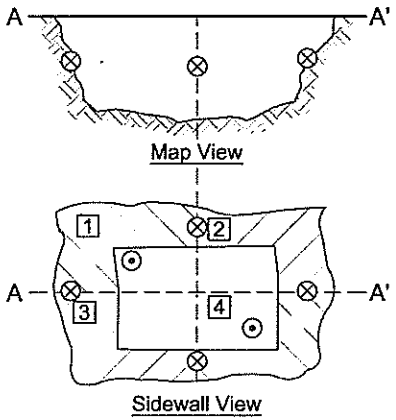
Geomatrix Consultants, Inc., 2007a, Feasibility Study/Remedial Action Plan, Former Pechiney Cast Plate Facility, Vernon, California, July.

Geomatrix Consultants, Inc., 2007b, Quality Assurance Project Plan, Former Pechiney Cast Plate Facility, Vernon, California, July.

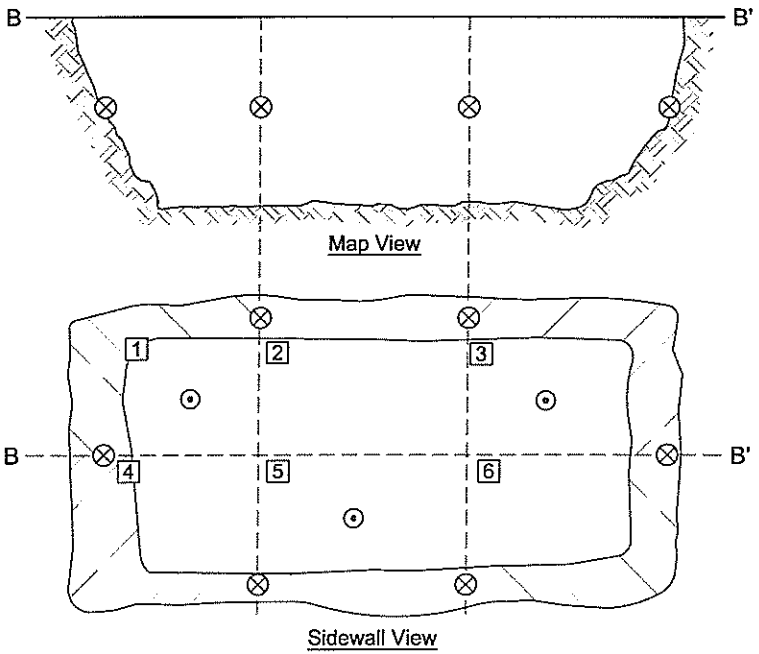
Regional Water Quality Control Board, 1997, Interim Guidance for Active Soil Gas Investigation, reissued February 25.

FIGURES

SMALL AREA EXCAVATION
SAMPLE LOCATION LAYOUT



LARGE AREA EXCAVATION
SAMPLE LOCATION LAYOUT



Explanation

- A——A' Line of cross section
- - - - - - Grid line
- [6] Grid area
- ⊗ Side wall sample
- ⊙ Bottom sample

Drawing not to scale

EXCAVATION SAMPLE GRIDS WITH
SAMPLE LOCATION LAYOUT
Former Pechiney Cast Plate Facility
3200 Fruitland Avenue
Vernon, California

By: SBN	Date: 03/02/07	Project No. 10627.003
Geomatrix		Figure 1

Plot Date: 07/19/07 - 1:16pm, Plotted by: jmelnick
Drawing Path: Y:\10627.003\Data\...\Drawing Name: Excav Sample Grids.dwg

APPENDIX C

PERIMETER AIR SAMPLING PLAN

Perimeter Air Sampling Plan
Demolition and Remediation Activities

Former Pechiney Cast Plate, Inc., Facility

3200 Fruitland Avenue, Vernon, California

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PERIMETER AIR SAMPLING PLAN FOR DEMOLITION AND REMEDIATION ACTIVITIES

Former Pechiney Cast Plate, Inc. Facility
3200 Fruitland Avenue, Vernon, California

1.0 INTRODUCTION

On behalf of Pechiney Cast Plate, Inc., Geomatrix Consultants, Inc. (Geomatrix), has prepared this Perimeter Air Sampling Plan (Plan) to be implemented during demolition and remediation activities at the former Pechiney Cast Plate, Inc. Facility in Vernon, California. The objective of this Plan is to collect data at the perimeter of demolition and remedial activities that will provide information on PM-10 particulate; lead; polychlorinated biphenyls (PCBs); trichloroethene (TCE); tetrachloroethene (PCE); benzene; 1,2,4-trimethylbenzene; and 1,3,5-trimethylbenzene emissions. Based on samples of soil and building materials, these are the key chemicals of concern that may be present in emissions during demolition and/or remedial activities. This Plan was updated in January 2007 to address below grade demolition and remediation activities and potential chemicals of concern associated with these activities. This Plan will be used in conjunction with the Feasibility Study/Remedial Action Plan (FS/RAP) (Geomatrix, 2007a), Below Grade Demolition Plan (Geomatrix, 2006a), below-grade technical specification, and other related documents for this project.

This Plan does not cover air monitoring for on-Site workers. Worker exposure monitoring is the responsibility of the demolition contractors performing the structural demolition and remediation work. Monitoring during asbestos abatement is being addressed by the abatement contractor and abatement monitor (Aurora). A Site Health and Safety Plan has been prepared for monitoring potential exposure by Geomatrix employees (Geomatrix, 2006b).

2.0 SITE BACKGROUND

The Vernon facility is located at 3200 Fruitland Avenue on an approximately 26.9 acre parcel (Figure 1). The facility consists of office and manufacturing buildings occupying approximately 600,000 square feet of the Site. The remaining areas are parking lots, outside storage areas, and partially paved vacant lots. The Vernon facility is surrounded by a fence with the Site entrance located on Fruitland Avenue.

2.1 SITE HISTORY

Aluminum Company of America's (Alcoa) operations at the Pechiney Cast Plate Facility reportedly began in approximately 1937. In approximately 1997, Alcoa sold the eastern half of its facility, which subsequently was razed, subdivided, and redeveloped as industrial and commercial properties. In December 1998, Alcoa sold the western portion of the facility (3200 Fruitland Avenue) to Century Aluminum Company. In 1999, Pechiney Cast Plate, Inc., purchased the Site.

The Vernon facility was used to manufacture high-precision cast aluminum plates and lies within an area zoned for industrial and commercial use. The facility is no longer in operation.

2.2 CHEMICALS OF POTENTIAL CONCERN

PCBs, metals (specifically lead as well as other metals), and volatile organic compounds (VOCs) have been detected in soil at the Site. TCE and PCE were the primary VOC detected in soil vapor and soil at the Site above screening levels for human health and/or potential impact to groundwater within buildings 106, 108 and 112. Metals, with the exception of arsenic, detected in soil did not exceed screening levels and/or background; however, soluble concentrations of some metals exceeded hazardous waste criteria. PCB concentrations in soil at isolated locations with Buildings 104 and 106 exceeded screening levels for human health. Stoddard solvent concentrations in the vicinity of Building 112A and the former Stoddard solvent underground storage tanks were detected at levels requiring further consideration by Alcoa. Removal of soil containing Stoddard solvent is not proposed as part of the below grade demolition and remediation.

Asbestos-containing materials (ACM), PCBs, and metals were detected in building materials at the Site. ACM (>1%) was detected in vinyl floor tiles and mastics, textured paints, HVAC sealant, corrugated wall panels (Galbestos panels), roofing mastic throughout the facility, and insulation debris on the roof of Building 104. PCBs were primarily detected in concrete floor samples from Building 104, on building surfaces, and in bulk samples of the Galbestos panels and wood block floors. Lead-based paint was identified throughout the facility. Metals were detected in the wipe samples collected from concrete floors, wood block floors, an I-beam flanges, wall trusses, and column footings.

Based on this information, the primary contaminants to be sampled during above grade structural demolition are PCBs and lead with the addition of PCE; TCE; benzene; 1,2,4-trimethylbenzene; and 1,3,5-trimethylbenzene during below grade demolition and/or soil

remediation. Benzene; 1,2,4-trimethylbenzene; 1,3,5-trimethybenzene will be used as indicators for Stoddard solvent emissions since these compounds represent some of the more toxic constituents and/or more prevalent constituents in Stoddard solvent. Asbestos is not included in this perimeter air sampling program since air monitoring and sampling will be the responsibility of the asbestos abatement contractor and abatement monitor (Aurora) during that phase of work. Although not required by SCAQMD, dust measured as particulate matter less than 10 microns (PM_{10}) will be measured to monitor compliance with SCAQMD Rule 403. Samples for PCBs; lead; PCE; TCE; benzene; 1,2,4-trimethylbenzene; and 1,3,5-trimethylbenzene will be collected to evaluate potential concentrations of these key contaminants in air dispersing from activities at the Site.

3.0 PROJECT DESCRIPTION

The planned activities at the Site consist of three general activities:

- Asbestos Abatement – All air monitoring associated with asbestos removal will be conducted by the asbestos removal contractor and abatement monitor (Aurora) to meet regulatory requirements. Asbestos abatement is anticipated to take two months.

- Building Demolition – Perimeter air monitoring during structural building demolition is addressed in this plan. Building demolition will consist of three phases: pressure washing of building surfaces, removal of aboveground structures, and removal of concrete pads and below grade structures. Perimeter air monitoring will be conducted during demolition of Buildings 104 and 106 and removal of concrete floor slabs from the same buildings, but will not be conducted during pressure washing inside structures. The construction manager will decide which specific activities and days will warrant sampling.

- Soil Remediation – Perimeter air monitoring during soil remediation is anticipated to last approximately four month.

4.0 PERIMETER AIR SAMPLING

Perimeter air sampling will focus on these key potential emissions from the project activities during demolition:

- Dust measured as particulate matter less than 10 microns (PM10);

- Lead; and

- PCBs.

Perimeter air sampling will focus on these key potential emissions from the project activities during remediation:

- Dust measured as particulate matter less than 10 microns (PM10);
- Lead;
- PCBs;
- PCE,
- TCE.
- Benzene,
- 1,2,4-Trimethylbenzene, and
- 1,3,5-Trimethylbenzene.

Perimeter air sampling will be conducted to quantify airborne concentrations of PM-10, lead, PCBs, and VOCs (during soil remediation) at one upwind and two downwind locations during project activities. Wind direction and sampling locations were identified based on a windrose for Vernon, California for 1981 developed using data from the SCAQMD's website (http:\\www.aqmd.gov). As shown in the wind rose (Appendix A), the predominant wind direction is from west to east. Pre-designated upwind and downwind sampling locations along the western and eastern property boundary have been identified to make sample tracking easier. One upwind sampling location and two downwind locations will be monitored throughout the project. Two downwind locations will be located on the eastern boundary of the Site at least 200 feet apart when monitoring occurs. The upwind and downwind locations will move over the course of the project and will be placed in proximity to the most intense project work for that particular day. For example, building demolition is anticipated to move from north to south so the monitors would move to the pre-designated locations from north to south as demolition progressed. The designated sample locations and identifiers are shown on Figure 1. The upwind and downwind sample locations will have to be verified based on the actual wind direction on the day of the sampling. During remediation of VOC areas, an additional cross-wind location will be monitored for ambient conditions based on the presence of an industrial cleaning facility in the vicinity of the site.

Perimeter air sampling data will be collected using air sampling devices followed by subsequent analytical laboratory analyses. Perimeter air samples will be collected using four

types of sampling devices. PM-10 air samples will be collected using PQ-100 or PQ-200 portable air samplers equipped with PM-10 inlets. The same sample collection devices and filters will be used for lead analysis. The PQ-100/200 samplers are approved by the EPA as portable samplers. The flow rate for the PQ-100/200 sampler is 16.7 liters per minute (lpm) and samples are collected on 47mm diameter Teflon filters. PCB samples will be collected using polyurethane foam cartridges (PUF) and a low flow sampling pump running at least 2.5 lpm. Volatile organic compounds will be collected using Summa™ canisters fitted with a flow control regulator.

Air samples will be collected daily during Site remediation work for the entire work day period (approximately 10 hours from 7 am to 5 pm) or longer if necessary. Air samples will only be collected over an entire work day since air samples collected for less than 10 hours may not achieve the detection limits necessary for the project. Samplers also will not be moved during the sampling period. At each air sampling station, the sampling devices will be set up with the air intakes elevated approximately 5 to 6 feet off the ground surface to collect a representative breathing zone sample. To the extent feasible, air samplers will be located away from large objects that may interfere with air movement near the sampler inlet. At the completion of the sampling period the sampling media will be uniquely labeled using the station identifiers, analyte, and the date. For example, identifier 1PCB-053106 would be used for a for a PCB sample at Station 1 on May 31, 2006. Abbreviations for analytes will be: PM10 for particulates, Pb for lead, PCB for PCBs, and VOC for VOCs. The samples will be individually packaged and shipped to an EPA accredited laboratory for analysis.

Detection limits in terms of air concentration will vary depending on how long the samplers are operated. PM-10 particulate weight will be determined gravimetrically by NIOSH Method 0500. Lead will be analyzed by NIOSH Method 7300. The expected limits of detection are 1 µg/filter for lead and 50 µg/filter for PM_{10}. Using the PQ-100/200 samplers at a flow rate of 16.7 lpm for a 10-hour workday, this equates to detection limits of 0.1 $\mu g/m^3$ for lead and 5 $\mu g/m^3$ for PM_{10}. PCB samples will be analyzed by EPA Method TO-10A. The expected limits of detection are 1 µg/filter; using a low flow pump at a minimum flow rate of 2.5 lpm for a 10-hour workday, this equates to a detection limit of approximately 0.7 $\mu g/m^3$. VOC samples will be analyzed by EPA Method TO-15 using medium level reporting limits. The expected limits of detection will be less than 0.015 µg/L for the VOCs.

Samples will be analyzed with a normal laboratory turn around time of 5 working days. Including time for sample shipment to the laboratory, sampling results will generally be available seven working days after sample collection.

Background air sampling will be conducted on three days prior to any dust-generating activities to evaluate background concentrations of PM-10 and lead in ambient air in and around the work area and to confirm sampling equipment is fully operational. Background air sampling will also be conducted on three days prior to demolition of concrete and excavation in areas of VOC-affected soil. A summary of the perimeter air sampling methods and action levels is shown in Table 1.

5.0 QUALITY ASSURANCE AND QUALITY CONTROL

A program of quality assurance and quality control (QA/QC) will be followed during implementation of this Plan to ensure consistent data collection and analysis procedures and to ensure that the data are representative of Site conditions. QA/QC procedures will be implemented to ensure correct operation of the monitoring/sampling equipment, and to validate the analytical data. The QA/QC procedures are discussed in the Quality Assurance Project Plan (QAPP, 2007b).

5.1 EQUIPMENT CALIBRATION AND MAINTENANCE

Manufacturer's specifications and operations manuals for each of the air monitoring devices to be used during the perimeter air sampling program are included in Appendix B. Calibration and maintenance procedures are summarized below.

5.1.1 Meteorological Monitoring Station

The Met One AutoMet sensors, datalogger, 3-meter stand, and solar power system will be set up and wired according to manufacturer's instructions. Wind direction, wind speed, temperature, relative humidity and barometric pressure will be data logged over 15 minute averaging periods for the duration of the work day. The data logged information will be downloaded at the end of each work day. Calibration of the sensors is done annually by the equipment rental company. The meteorologic monitoring station will be set up at the northeast corner of the site where power will be available but away for contractor activities.

5.1.2 PQ-100/200 Air Sampler

The PQ-100 sampler will be assembled and programmed according to the manufacturer's manual. Target flow rates are pre-programmed and calibrated by the manufacturer, and recalibration should not be required. Flow rates will be verified on a daily basis using a DeltaCal or TriCal flow meter to check for air leaks.

PQ-100 samplers used for collection of airborne samples will be programmed with a target flow rate of 16.7 liters per minute. New 47mm Teflon filters will be placed in the filter holder each day. Filters placed in the PM_{10} samplers will be pre-weighed at the laboratory. Start time, stop time, and flow rates will be recorded in the daily field notes for each sampler.

5.2 SAMPLE HANDLING AND CUSTODY REQUIREMENTS

A chain-of-custody (COC) will be prepared for each day's samples and will include the project number, sample date, sample numbers, sample volume, analyses requested, and the sampler's signature. Samples and the original COC will be shipped to the laboratory using an overnight courier service, with consideration of holding times and weekend sample receipts at a designated laboratory. Samples may also be picked up at the Site by the laboratory. Copies of the COC will be kept with the daily field notes. Holding times for air monitoring samples are as follows:

- PCBs – PUF cartridge samples need to be extracted by the laboratory within 7 days of sample collection and analyzed within 40 days after sample extraction. Sample preservation includes storing samples in a chilled cooler (at 4 degrees Celsius).
- PM10 and Pb – PQ-100/200 samplers have a 6 month holding time before analysis is required. No sample preservation is necessary.
- VOCs – Summa canister with a regulator for 10-hour work day have a 30 day holding time from sample collection to analysis. No sample preservation is necessary.

For samples requiring temperature preservation, a temperature blank will be placed in the colder during along with samples. The temperature blank will be clearly marked as such.

5.3 QA/QC SAMPLES

A field blank consisting of unused filter media will be shipped to the laboratory along with other samples and analyzed to check for contamination during media preparation or field procedures. At least one field blank per month will be analyzed for each type of sampling media (i.e., filters, PUF samplers, and Summa canisters).

6.0 ACTION LEVELS

The action level for PM-10 particulates will be 50 $\mu g/m^3$ based on the California ambient air quality standard and as specified in South Coast Air Quality Management District (SCAQMD) Rule 403. The action level for lead will be 0.3 $\mu g/m^3$ based on the California Air Resources Board's Risk Management Guidelines for New, Modified, and Existing Sources of Lead (March 2001). This level is applied as a 30-day average, but for the purpose of this Plan will be used as an action level. This level is the acceptable concentration of lead in air for an area with average exposure to lead based on house age and income level as described in the guidelines.

The remaining action levels are based on minimum risk levels published by the Agency for Toxic Substances Disease Registry (ATSDR) for substances that are commonly found at Superfund sites or other regulatory screening criteria if MRLs were not available. A minimum risk level is an estimate of the daily human exposure to a hazardous substance that is likely to be without appreciable risk of adverse health effects over a specified duration of exposure-chronic, intermediate, and acute. Minimum risk levels are based on non-cancer health effects for the most sensitive health effects for the specific route of exposure. Minimum risk levels have been developed for acute (1 to 14 days), intermediate (15 to 365 days), and chronic exposure (more than 365 days). For this monitoring program for a duration of approximately 5 months, intermediate minimum risk levels will be used unless unavailable, in which case chronic minimum risk levels will be used.

The action level for PCE will be 0.27 micrograms per liter (µg/L), the minimum risk level for chronic exposure (ATSDR, 2006) since an MRL for intermediate exposure has been published. The action level for TCE will be 0.54 µg/L, the minimum risk level for intermediate exposure. The action level for benzene will be 0.029 µg/L, the minimum risk level for intermediate exposure. Table 1 lists the action levels for this project.

An MRL for inhalation of 1,2,4-trimethylbenzene and 1,3,5-trimethylbenzene was not available. The action level for 1,2,4-trimethlbenzene and 1,3,5-trimethylbenzene will be 0.062 micrograms per cubic meter ($\mu g/m^3$) based on 10 times the preliminary remediation goal for chronic exposure published by the U.S. Environmental Protection Agency. The chronic exposure level is based on noncarcinogenic effects over a lifetime of exposure. For a short-term project such as this, the duration of exposure is significantly lower, corresponding to a higher allowable concentration in air.

An MRL for inhalation of PCBs was not available. The action level for PCBs will be 1.0 $\mu g/m^3$ based on 10 times the preliminary remediation goal for chronic exposure published by the U.S. Environmental Protection Agency. The chronic exposure level is based on carcinogenic effects over a lifetime of exposure. For a short-term project such as this, the duration of exposure is significantly lower, corresponding to a higher allowable concentration in air.

If measurements exceed action levels, work will stop and additional dust (for dust, lead, or PCBs) or vapor controls (for VOCs) will be implemented. For dust, the following activities will be implemented:

- Apply water spray or mist or
- Slow work.

For VOCs that exceed action levels, the following activities will be implemented:

- Cover subject soil with clean soil;
- Slow work;
- Reduce size of area being excavated; and/or
- Apply vapor suppression.

Additional air monitoring may be conducted to confirm the effectiveness of emission reduction activities.

7.0 DOCUMENTATION AND REPORTING

A daily record of significant events and observations during the perimeter sampling will be recorded on daily field records. Periodic notation of meteorological measurements will be recorded on the Meteorological Monitoring Form. Periodic checks of the flow rate readings on the PQ-100/200 samplers will be recorded on the Air Sampling Forms.

A final written report of the Perimeter Air Monitoring Program will be prepared. This report will include a discussion of sampling methods and procedures, evaluation of the results, calibration and quality control information, and copies of field sampling forms and laboratory reports with chain-of-custody records.

8.0 REFERENCES

Agency for Toxic Substance Disease Registry, 2006, Toxicological Profiles, http://www.atsdr.cdc.gov/toxpro2.html

Geomatrix Consultants, Inc., 2006a, Below Grade Demolition Plan, Former Pechiney Cast Plate Facility, Vernon, California, December.

Geomatrix Consultants, Inc., 2006b, Site Health and Safety Plan, Pechiney Cast Plate Facility, Vernon Facility, 3200 Fruitland Avenue, Vernon, California, July.

Geomatrix Consultants, Inc., 2007a, Feasibility Study/Remedial Action Plan, Former Pechiney Cast Plate Facility, Vernon, California, July.

Geomatrix Consultants, Inc., 2007b, Quality Assurance Project Plan, Former Pechiney Cast Plate Facility, Vernon, California, July.

TABLES

TABLE 1

PERIMETER AIR SAMPLING METHODS AND ACTION LEVELS

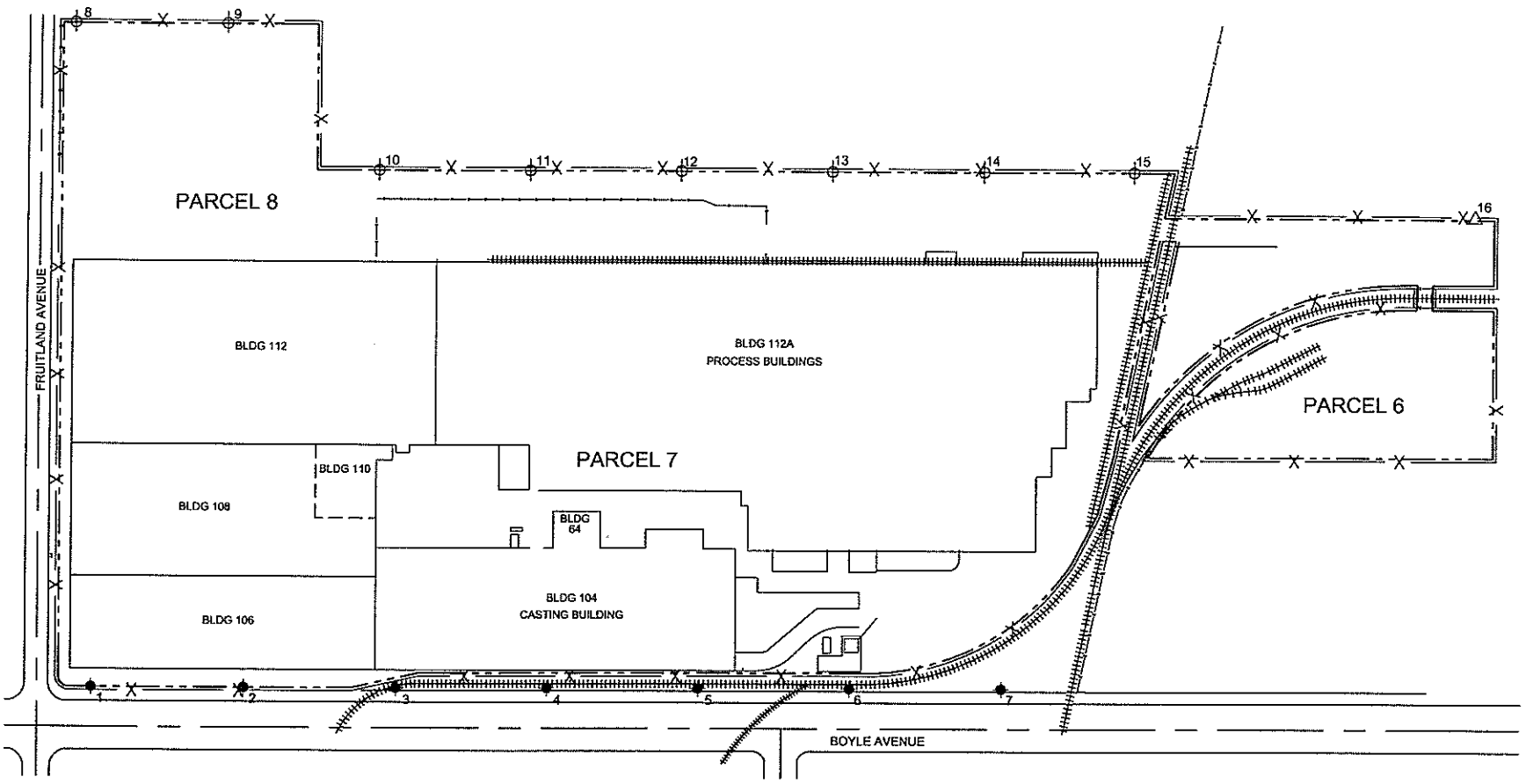
Pechiney Cast Plate Facility
Vernon, California

Parameter and Equipment	Method (Method Detection Limit)	Frequency and Location	Estimated Number of Sampling Days	Action Levels
PM-10 Particulates PQ-100/200 sampler with PM-10 inlet using pre-weighed 47mm diameter Teflon filters.	NIOSH 0500 for particulate weight (50 µg/filter or about 6 µg/m^3)	One upwind and two downwind locations[1] at least once per week during building demolition[2] and soil remediation.	3 background 1 per week for 5 months	50 µg/m^3
Lead PQ-100/200 samplers using 47mm diameter Teflon filters.	NIOSH 7300 for lead. (1 µg/filter or about 0.1 µg/m^3)	One upwind and two downwind locations[1] at least once per week during building demolition[2] and soil remediation.	3 background 1 per week for 5 months	0.3 µg/m^3 for lead
PCBs Polyurethane foam (PUF) cartridge	TO-10A for PCBs (1 µg/cartridge or about 0.6 µg/m^3)	One upwind and two downwind locations[1] at least once per week during building demolition[2] and soil remediation in PCB areas.	3 background 1 per week for 5 months	1.0 µg/m^3
VOCs Summa™ canister with regulator for 10-hour work day	TO-15 for tetrachloroethene, trichloroethene, benzene, 1,2,4-trimethylbenzene, and 1,3,5-trimethylbenzene (Approximately 0.002 µg/L)	One upwind, one crosswind, and two downwind[1] locations at least once per week during soil remediation in VOC areas.	3 background 1 per week for 4 months	PCE – 0.27 µg/L TCE – 0.5 µg/L Benzene – 0.029 µg/L 1,2,4-TMB – 0.062 µg/L 1,3,5-TMB – 0.062 µg/L

Notes:

1. Upwind and downwind locations will be moved during Site activities to the western and eastern perimeters closest to actual field activities. Downwind samplers will be placed at least 200 feet apart.
2. Air samples will not be collected during power washing of interior surfaces.

FIGURES



EXPLANATION

1 ◆ UPWIND SAMPLE LOCATION

8 ⊕ DOWNWIND SAMPLE LOCATION

16 △ CROSSWIND SAMPLE LOCATION

Approximate Scale in Feet
0 70 140
0 21 42
Approximate Scale in Meters

PROPOSED AIR MONITORING LOCATION
Former Pechiney Cast Plate, Inc. Facility
Vernon, California

By: SBN	Date: 01/10/07	Project No. 10627.000
Geomatrix		Figure 1

Plot Date: 07/18/07 - 1:19pm, Plotted by: snewkirk
Drawing Path: Y:\10627.000\Sitedrh, Drawing Name: Site_Location_mod_v3.dwg

APPENDIX A